Notice of Allowability	Application No.	Applicant(s)	
	09/845,693	ALTMAN ET AL.	
	Examiner	Art Unit	
	David J. Huisman	2183	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *the appeal brief filed on June 29, 2007*.

2. ☒ The allowed claim(s) is/are *1-3, 5, 7-13, 15-19, and 21 (hereafter renumbered as claims 1-17)*.

3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
   a) ☐ All b) ☐ Some* c) ☐ None of the:
      1. ☐ Certified copies of the priority documents have been received.
      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
      3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.

5. ☒ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
   (b) ☒ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date see attached.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Nathaniel T. Wallace, Reg. No. 48,909, on September 19-20, 2007.

The application has been amended as follows:

Amendment to the Title

2. Per MPEP 606.01, please replace the current title with --System And Method Including Distributed Instruction Buffers For Storing Frequently Executed Instructions In Predecoded Form--.

Amendments to the Claims

3. Regarding claim 1, at the end of the paragraph beginning in line 3, replace "compiler;" with --compiler, wherein the second instruction set is a logical subset of the first instruction set, and wherein the instructions of the second instruction set are control signals generated by the compiler and are not decoded during a runtime of the program;--

4. Regarding claim 2, in line 2, replace "a compiler" with --the compiler--.

5. Regarding claim 6, please cancel claim 6.

6. Regarding claim 7, in line 3, replace "first form set" with --first set from--.

7. Regarding claim 11, replace the period in the last line with a comma and insert the following new paragraph after the last paragraph: --wherein the second instruction form is a logical subset of the first instruction form, wherein the predecoded instructions of the second instruction form are statically stored in the plurality of buffers, and wherein the predecoded instructions of the second instruction form are control signals generated by a compiler and are not decoded during a runtime of the program.--

8. Regarding claim 13, in line 3, please replace "unit" with --units--.

9. Regarding claim 20, please cancel claim 20.

10. Regarding claim 21, in line 13 (line 2 of the 2nd to last paragraph), replace "form, wherein" with --form, wherein the predecoded instructions of the second instruction form are not decoded during a runtime, and wherein--.

Drawings

11. In response to the application being allowed, formal drawings are now required.

Reasons for Allowance

12. The following is an examiner's statement of reasons for allowance:

Hammond et al., U.S. Patent No. 5,638,525, has taught a system capable of executing two instruction sets, each of which includes a branch instruction to jump to the other instruction set, wherein both sets are stored in the same cache prior to decoding and execution.

Trivedi et al., U.S. Patent No. 6,430,674, has taught a system capable of executing multiple instruction sets, each of which includes a branch to jump to the other instruction set,

wherein one set includes instructions stored in translated form, fetching is disabled for the instruction set not currently selected, and both sets of instructions are decoded and executed.

Regarding claim 1, the prior art of record has failed to teach, both individually and in combination, and together with all additional claimed features:

- processing a provided program of instructions comprising a plurality of instructions of a first instruction set and a plurality of instructions of a second instruction set, where "instruction set" is not merely a group of instructions, but the repertoire of instructions available (see appeal brief filed on June 29, 2007, page 7, 1st paragraph), and wherein the second instruction set is a logical subset of the first instruction set and wherein instructions of the second instruction set are predecoded by a compiler, wherein instructions of the second instruction set are not decoded during a runtime of the program, and executing at least one instruction of the second instruction set in response to at least a second counter, wherein the second counter is invoked by a branch instruction of the first instruction set.

Regarding claim 11, the prior art of record has failed to teach, both individually and in combination, and together with all additional claimed features:

- a processor for processing a program of instructions comprising instructions of a first instruction form and a second instruction form, wherein the second instruction form is a logical subset of the first instruction form and wherein predecoded instructions of the second instruction form are control signals generated by a compiler and are not decoded during runtime, and a sequencer that

controls a plurality of gates connected between a plurality of execution queues for storing decoded instructions of the first instruction form and the plurality of execution units.

Regarding claim 21, the prior art of record has failed to teach, both individually and in combination, and together with all additional claimed features:

- a branch unit connected to an instruction fetch unit for the first instruction form and a sequencer for the second instruction form, wherein the branch unit switches the processor from the first instruction form to the second instruction form in response to a branch instruction of the first instruction form and switches the processor from the second instruction form to the first instruction form in response to a branch instruction of the second instruction form, and a plurality of buffers, proximate to the execution units, for statically storing predecoded instructions of the second instruction form, wherein the predecoded instructions of the second instruction form are not decoded during a runtime.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David J. Huisman whose telephone number is (571) 272-4168. The examiner can normally be reached on Monday-Friday (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Chan can be reached on (571) 272-4162. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DJH
David J. Huisman
September 21, 2007